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Paradigm shift for future mobility: a cross country analysis of behavioural policies

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Abstract

The influence of Behavioural Economics models on government policy for light-duty transport over the next decade is examined through interviews with government officials, experts and academics from seven regions: EU, Germany, Greece, UK, USA (Federal), California and Malaysia. The analysis reveals that support of behavioural change policies depends on the type and level of governance of the region, on its technological focus and on cultural and historical factors. The results indicate that the impetus for individual mobility-related behaviour policies will most likely come from local authorities and private organisations.

Transport; Mobility; Mobility behaviour; Behavioural policies; Soft policies; Behavioural Change; Behavioural Economics

1. Introduction

Transport is a major contributor to the production of greenhouse gases and particularly of CO_2. The European Environment Agency assessment of global megatrends (EEA, 2011) predicts a very rapid increase in private car ownership in China, India and the former Soviet Union, while in the western world the increase will be moderate. One assessment foresees a tenfold increase in the annual sales of highway vehicles in China by 2050 (Wang, Huo, Johnson, & He, 2006).

In view of such increase and given the urgency for mitigation measures to address the climate change risks, many promising new technological pathways have been proposed to help in the reduction of transport-derived CO_2 emissions. There is, however, recognition that technology alone will not be

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sufficient and changes in individual travel behaviour will also have a significant role to play. This is particularly important as the various low-carbon technologies are not yet mature and it will take some time to see any effect of their large-scale application (Nath et al., 2010). More rapid reductions in CO_2 emissions could potentially be achieved through changes to individual transport-related behaviour, such as mode shift from cars to lower carbon public transport, downsizing of vehicles, reducing speeds and passenger miles and adopting more efficient driving styles. Restrictive policies could, however, be met with resistance or be politically costly, so there could be potential in measures that encourage behavioural change towards the "right" direction, without restricting freedom of choice (Otto, 2010).

Behavioural Economics, with the integration of sociology and psychology into neoclassical economics, provides a model for policy measures beyond the traditional market-based instruments. It focuses on individual choice and the factors that motivate people to do things (social norms, habits, self-expectations, empowerment, context biases, etc.) (Dawnay & Shah, 2005). Behavioural Economics' supporters advocate "Choice Architecture", the idea that small interventions can be designed to help people overcome cognitive bias and make the "right" decisions automatically. These so-called "soft" measures, based on Behavioural Economics' models, are already being applied in other sectors, but their application in transport is still rather limited. Some governments and legislatures have begun to consider, in a more systematic way, policy initiatives that seek behavioural change. For instance, in the UK the House of Lords Science and Technology committee held an inquiry in 2010-2011 into the effectiveness of behavioural change interventions to reduce car use (House of Lords, 2010). Meanwhile, local authorities and the private sector have been equally active, developing initiatives, such as car-sharing, which make intermodalism more viable and "nudge" people to use cars more rationally and drive less passenger miles (Shaheen, Sperling, & Wagner, 1998; Shaheen, 2004).

This study focuses on light duty transport (private vehicles). The stage of adoption of soft transport policies of several governments is assessed, looking at whether models of Behavioural Economics influence national transport policy making. The results are used to examine the implications of future behavioural change efforts for transport policies.

2. Background

The literature on the application of Behavioural Economics' models in transport consists mainly of limited experimental results and surveys, focusing on the anchoring and framing of policies. This is consistent with the relatively recent interest in this field (Ben-Elia, Erev, & Shiftan, 2008; Gärling, Gärling, & Johansson, 2000).

Overall, the evidence for behavioural change policies is weak (Graham-Rowe, Skippon, Gardner, & Abraham, 2011). There are not many cases of large-scale policies that have been effective in real-life situations and little quantitative research has taken place to see what effect these policies might have had for the reduction of CO_2 emissions (Markowitz & Doppelt, 2009).

McFadden analysed the value of Behavioural Economics in transport from the point of view of the consumers and their influence in policy (McFadden, 2007). He argued that Behavioural Economics' analysis can provide many useful insights in transport. He also concluded that careful framing and education are needed in behavioural interventions to overcome the resistance of consumers. Other authors have looked at how public policy could be designed around Behavioural Economics and concluded that motivation is very hard to understand, financial incentives do not always work and information alone is not enough to encourage behavioural change. Quite often, once the incentives stop, people revert to their previous behaviour (Cairns et al., 2004; Fujii & Taniguchi, 2005; Moser & Bamberg, 2008). Instead, interventions will have to be designed carefully, they will have to address more than one area of behaviour and they will have to be renewed and if needed amended often (Ampt, 2003; Avineri &

Goodwin, 2009; Cairns et al., 2004; Dawnay & Shah, 2005; Dolan, Hallsworth, Halpem, King, & Vlaev, 2010).

The main target of behavioural interventions in transport is mode shift from private car use to other modes of transport, especially public transport (Bamberg, Fujii, Friman, & Gärling, 2011; Graham-Rowe et al., 2011). Strong enforcement of legislation appears to have considerable success. According to Avineri and Goodwin (2009), results apply even if the legislation was initially controversial, provided it can be reinforced with social approval/ disapproval and perceived fairness (clear rationale and unambiguous tests of compliance). Educational and marketing approaches on the other hand seem to vary in effectiveness, depending on their context. Combined approaches seem to be the most effective.

3. Methodology

Seven sampling sites were examined to understand tendencies and perceptions of behavioural change policies. These were: the EU as a whole and three of its Member States: Germany (a Federation), the UK and Greece; the USA (Federal) and the State of California; and Malaysia. They broadly represent the developed world, while Malaysia was included for comparison reasons as indicative of an emerging economy. They were chosen for their varying level of commitment to emissions reductions, past transport policies, future policy focus and economy type.

A series of semi-structured interviews were conducted in order to understand how Behavioural Economics' models influence transport policy planning. The interviews followed standard social science practice (Bryman, 1988; Hammersley & Atkinson, 1994; Yin, 2008). Interviewees included policy makers, transport analysts, executives of public organisations and academics from the seven regions. This group was targeted for their knowledge of transport policies, potential familiarity with the impact of behavioural change schemes, as well as for their influence in future policy making. The aim of the interviews was a better understanding of tendencies and perceptions of behavioural change policies. These perceptions are of interest as an indication of influence to current and future government initiatives and of the ways these are likely to develop and be integrated with technology development policies and CO_2 reduction targets.

A total of sixteen interviews were conducted via telephone or email in April-May 2011. The interview questions evolved around groups of topics and the interviewers were flexible to adapt the questions to their interviewees. This approach was chosen because of the diversity of the interviewees (position, country etc.) and because it provides the freedom to explore any unanticipated topics. The four groups of topics were:

- Behavioural change policies for transport: awareness, stage of implementation in the country, perceived effectiveness etc.
- Past and present transport policies: lessons learned
- What is the role governments can play? Who else can play a part in soft policies?
- Social norms and current conditions: status symbols, recession and policy making etc.

Additionally, a thorough bibliographic survey of transport policies for behavioural change in the seven regions was conducted prior to the interviews and interviewees were asked to comment on them.

The interviews were then analysed using a thematic analysis to draw conclusions on the position of soft policies in the policy making landscape and the perceptions of policy makers in the regions examined. The flexibility of thematic analysis, a widely used method in the analysis of qualitative data, makes it a very useful tool that can provide a detailed and complex account of data (Braun & Clarke, 2006).

4. Results

The insights gained from the interviewees on behavioural policies can be summarised as follows:

4.1. European Union

The recent White Paper on a Single European Transport Area (European Commission [EC], 2011a) proposes behavioural change measures in the transport strategy of the EU for the next ten years. Similar emphasis is given in its very recent Communication on "Resource Efficiency" (EC, 2011b). The EU supports a large number of schemes that promote green/eco mobility, such as the European Mobility Week (EC, 2011c) etc. However, in the area of transport, the EU does not impose legislation; this is done by its Member States. Interviewees at EU level mentioned that the main problem with behavioural change is that the results of policies are difficult to measure. A *"cost-benefit analysis of behavioural change policies is not possible"*. People *"have to change their behaviour but there is disagreement as to how this change will happen, what instruments have to be used and how tough they should be"*.

4.2. Germany

There is no clear sign of a paradigm shift towards soft policies in Germany, at least at Federal level, nor wide public debate around it. The representatives of the German Ministry for Transport did not wish to be interviewed on behavioural change policies and were eventually removed from our sample. Transport psychology experts explained they receive little interest from national (Federal) transport policy makers. One interviewee stated that Germany has a "*keen interest in supporting Germany's technology leadership*", thus confirming Germany's traditional pre-cautionary policy making principle, a preference and confidence for hard rather than soft policies (O'Riordan & Cameron, 1994). However, at State (Länder) and local level the use of soft policies is not uncommon, as can be seen in the case of Hamburg, the European Green Capital 2011 (EC, 2010).

4.3. Greece

Greece is a keen participant in various EU-led behavioural change initiatives. However, the main interest appears to be at local and NGO level and there does not appear to be a comprehensive behavioural change national strategy in place, nor a strong environmental policy framework (Organisation for Economic Co-operation and Development [OECD], 2010). Interviewees stressed the importance of linking any efforts to change behaviour to further investment in infrastructure. They emphasised that: *"in order to reduce the use of cars, [we] have to create conditions and infrastructure that assist and stimulate behaviour change"*.

4.4. United Kingdom

The representatives of the Behavioural Insights Team of the Cabinet Office, a Unit set up to look at ways to incorporate behavioural principles in government policy, did not provide any personal opinions or deviate from publicly available information about the activities of the Unit. The issue of freedom of personal choices was stressed, according to which restricting people is *"too much of an intervention"* and it is not the aim of the Unit.

4.5. United States of America

There was mixed reaction among government officials at Federal level regarding behavioural change, with some believing that behavioural changes can create positive impacts in reducing car use and emissions while others believing otherwise. Behavioural change receives positive attention at State level if the policies *"are conceptually easy to understand, voluntary, low cost, and generally easy to implement"*.

4.6. California

The target of California State policy is to provide practical alternatives to current travel modes to encourage behaviour change by "*pushing more transit and car-pool lanes and encouraging people to share rides"*. However, the main emphasis remains on technological change. Therefore, the technological standards for new cars become even stricter. A very optimistic opinion according to one of the interviewees is that cars are no longer seen by young people as status symbols and there is generally a more positive attitude towards public transport and green vehicles (the new status symbols).

4.7. Malaysia

Policy emphasis is on developing infrastructure to encourage mode shift, with a future expectation for behavioural change policies. However, there are also potentially conflicting policies in place to support the local automotive and oil industries, therefore promoting car use. It was also mentioned that *"Building roads and highways is considered good for [the politicians'] business. Behavioural change schemes take time to bear fruit, sometimes many years"*.

5. Analysis / Discussion

From the results gathered in the interviews, the main themes that emerged were:

- Technology focus
- Cultural Identity
- Levels of Governance

These themes provide a framework that explains the prevalence of behavioural policy making within the national context. Throughout the analysis these recurring themes were observed, although these are not the only themes in the data, nor are any causal relationships established among them. However, the analysis of the policies of the countries using these themes as a framework helps in better understanding some prevailing influences in the adoption of behavioural change policies.

5.1 Technology Focus

Technology-oriented countries are less likely to show interest in behavioural change policies. However, soft policies are seen as complimentary to innovation and infrastructure creation. Examples: USA, Germany, to a certain extend Malaysia. Economies with more emphasis on services are more likely to have a more positive view of soft policies. Examples: UK, Greece.

5.2 Cultural Identity

A country's cultural background/ cultural ideology/ history may influence attitudes towards behavioural change policies, especially those that could be interpreted as restrictive. For example: in Germany there is aversion to what might be perceived as social engineering, for historical reasons; in the USA perceived personal freedom is a determinant of policies. In the UK on the other hand, there is a different perception of State intervention (Jones, Pykett, & Whitehead, 2010). However, behavioural change schemes might be interpreted as coercive (all interviewees spoke against coercion).

5.3 Levels of Governance

Governance structure affects the adoption of soft transport policies. Supra-national organisations (EU) invest in funding research and experiments, and in promoting behavioural change policies by providing advice and support to their Member States and to Civil Society organisations. Federations (USA, Germany) delegate decision-making to State level, where there appears to be much more interest and application of soft policies. In countries with stronger centralised governance (UK, Greece, Malaysia) behavioural change policies are formulated and directed from central government organisations.

6. Conclusions

6.1 Discussion

Interviews were conducted with people who may influence policy in the regions examined. The analysis indicates that there is a strong belief in infrastructure and technological developments among those interviewed, but confidence in behavioural change policies varies with cultural and personal perceptions.

- The influence of Behavioural Economics is still relatively limited in transport policy making.
- Countries who see themselves as technological leaders (USA, Germany), or who lack the transport infrastructure needed to support behavioural change (Malaysia), are less interested in behavioural policies at central government level.
- Various soft policy initiatives exist in the countries examined but they are decentralised, small scale or private/ local authority/ Civil Society organisations led.
- There was no consensus on the ability of behavioural change schemes to produce behavioural change.
- All policy makers wanted to stress that they do not want the application of coercive measures or the restriction of individual choice through policies.

In general, it has been difficult to assess whether soft policy initiatives are carefully planned according to Behavioural Economics' models. Rather it appears that at least some are *ad hoc* intuitive policies, used as an alternative to policies that require long term economic investment.

6.2 Policy implications

The interviews have shown that soft behavioural change policies are still at a rather early stage. Interest and confidence in them apparently differs considerably from country to country and from one policy maker to the next, indicating that mid- and top-level policy makers are still uncertain of these policies. It is therefore unlikely that there will be any large-scale implementation of soft policies in place in the short term. The main drive for such policies will probably continue to be local authorities, Civil Society organisations and private or public organisations, mostly at local level. Advocates of soft policies

will therefore have to concentrate their efforts in order to convince government policy makers of the validity of these policies.

The relevant policies most likely to be pursued at government level are behavioural change through indirect action: land-use planning and improvement of public transport etc. These policies are appealing to politicians and citizens alike because they have concrete and measurable results, although these results are clearly of medium- and long-term.

Throughout the present research it became evident that there is a need for more controlled policy experiments to gain credible evidence of cause and effect mechanisms behind potential soft policies. Some of the pioneering studies have shown that especially combinations of measures could have early and substantial emissions reduction potential (Avineri & Goodwin, 2009; Cairns et al., 2004). Given the still rather limited interest in such policies at central government level, it is questionable whether any significant government funding for such schemes will become available, unless governments show an interest in them as a substitute to more expensive infrastructure policies at a time of economic difficulty.

While the success of past transport policies is often attributed by politicians and policy makers not only to common sense but also to "good marketing" or enforcement, personal choice also needs to be considered as a major factor in the success of these schemes. However, choice architecture and persuasion, also called "nudging" or "design with intent", can raise questions on intervention in personal freedom. Governments have to decide whether it should be obligatory for individuals to protect the environment by changing behaviour, especially when the effects of such changes are not measurable. This is a debate that is outside the scope of this work, but it is worth noting that no-one wants to be seen to be coercive. However the invisibility of certain aspects of choice architecture may be seen as an advantage by some.

We asked in this study whether it is worth pursuing soft transport policies for behavioural change or whether behavioural change will occur anyway as a result of changes in infrastructure and technology. The interviewees were divided on this issue. At present, there is no large scale proof that soft policies will be able to reduce carbon emissions significantly. On the other hand, "policy experiments are currently being developed together with local authorities to gain better internal validity".

Besides the possibility that effective soft policies may have short-term impact on carbon emissions, such policies can benefit society in other ways too, for example by increasing road safety. This, together with the fact that models of Behavioural Economics are becoming more popular in other fields, could be a strong argument in favour of increasing research into behavioural policies for transport.

6.3 Limitations and future work

This study offers a first insight into governments' motivation for behavioural transport policies. The main limitation of our study was the number of interviewees, but taking into account their generally high ranking within the regions' governance it is sensible to conclude that their point of view represents the policies discussed in top-level policy making. It is therefore possible to distinguish emerging themes and trends in our data. The next step of this research could include more interviews with policy makers in order to investigate deeper the topics that emerged from this first round of interviews. More countries could also be examined in order to create a world or regional trend chart of soft transport policies.

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